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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/104,788	06/25/1998	JOHN ADAMS MEYERS	97-ST37	4685

22511 7590 04/27/2004

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EXAMINER

DANG, HOANG C

ART UNIT PAPER NUMBER

3672

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/104,788

Applicant(s)

MEYERS ET AL.

Examiner

Hoang Dang

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21, 23, 25-45, 47, 49-67, 69, 71 and 74-76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21, 23, 25-45, 47, 49-67, 69, 71 and 74-76 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03122004</u> . | 6) <input type="checkbox"/> Other: _____  |

1. The finality of the last Office action mailed on April 8, 2004 is withdrawn because the Preliminary Amendment filed on March 18, 2004 was not crossed in the mail and not in the file at the time the Office action was issued. The new grounds of rejections are as follows:

#### **DETAILED ACTION**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Rejections - 35 USC § 103***

3. Claims 1-18, 20, 23, 25-42, 44, 47, 49-64, 66, 69, 71 and 72-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmberg (US 5,794,728) in view of Keshavan et al (US 5,370,195) or Hedlund (US 5,575,342).

Palmberg discloses the invention as claimed except that the exposed portions of the inserts are not enhanced with a superhard material. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the exposed portions of the inserts of Palmberg with a layer of superhard material as claimed because it is well known in the well drilling art to provide inserts of a percussion drill bit with a layer of polycrystalline diamond to enhance their wear resistance as evidenced by either Keshavan et al (see column 2, lines 35-49 and column 3, lines 3-7) or Hedlund et al (see column 2, lines 58-64 and column 3, lines 28-39).

As for claims 7-11, 51-35 and 54-58, it would have been obvious to use the dimension or value within the claimed ranges since it has been held that where the general conditions of a

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claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As for claims 69 and 71, since the diameter of the second exposed portions of the "second insert" 21 of Palmberg is larger than the diameter of the first exposed portions of the "first insert" 23 of Palmberg, the "ratio of the thickness to the radius of curvature of the second exposed portions is less than the ratio of the thickness to the radius of curvature of the first exposed portions" as recited.

As for claims 74-76, since the larger inserts of Palmberg '728 are located outside on the bit face relative to the smaller inserts as that of applicant's, they are inherently arranged as claimed.

With regard to the new limitation of "wherein the bit head defines a first plurality of first cavities in which the first plurality of first inserts are disposed, and a second plurality of second cavities in which the second plurality of second inserts are disposed, wherein the depth of the second cavities is greater than the depth of the first cavities", Figure 2 of Palmberg '728 clearly shows the depth of the second cavity for second insert 21 greater than the depth of the cavity for the first insert 23 as claimed.

4. Claims 1-18, 20, 21, 23, 25-42, 44, 45, 47, 49-64 and 66, 67, 69, 71 and 74-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skidmore (US 3,955,635) in view of Keshavan et al (US 5,370,195) or Hedlund (US 5,575,342) and Palmberg (US 5,794,728) or Hughes (GB 1,507,163) or Liljekvist et al (EP 0140849).

Skidmore discloses the invention as claimed except that the exposed portions of the inserts are not enhanced with a superhard material. However, it would have been obvious to one

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of ordinary skill in the art at the time the invention was made to provide the exposed portions of the inserts of Skidmore with a layer of superhard material as claimed because it is well known in the well drilling art to provide inserts of a percussion drill bit with a layer of polycrystalline diamond to their wear resistance as evidenced by either Keshavan et al (see column 2, lines 35-49 and column 3, lines 3-7) or Hedlund et al (see column 2, lines 58-64 and column 3, lines 28-39).

With respect to the new limitation that the second cavities for the second inserts have a greater depth than the first cavities for the first inserts, it is conventional in the drill bit art to mount a larger insert in a larger and deeper cavity in a drill bit body because it is subjected to a greater force than a smaller insert as evidenced by Palmberg '728 (see Figure 2) or Hughes '163 (see Figure 2) or Liljekvist et al '849 (see Figure 3).

As for claims 7-11, 51-55 and 54-58, it would have been obvious to use the dimension or value within the claimed ranges since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As for claims 69 and 71, since the diameter of the second exposed portions of the “second insert” (outer ones) of Skidmore is larger than the diameter of the first exposed portions of the “first insert” (inner ones) of Skidmore, the “ratio of the thickness to the radius of curvature of the second exposed portions is less than the ratio of the thickness to the radius of curvature of the first exposed portions” as recited.

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As for claims 74-76, since the larger inserts of Skidmore '635 are located outside on the bit face relative to the smaller inserts as that of applicant's, they are inherently arranged as claimed.

5. Claims 1-19, 21, 23, 25-43, 45, 47, 49-65, 67, 69, 71 and 74-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isakov (US 4,716,976) in view of Keshavan et al (US 5,370,195) or Hedlund (US 5,575,342) and Palmberg (US 5,794,728) or Hughes (GB 1,507,163) or Liljekvist et al (EP 0140849).

Isakov discloses the invention as claimed (see figures 1-14; column 4, line 37 through column 5, line 24) except that the exposed portions of the inserts are not enhanced with a superhard material. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the exposed portions of the inserts of Isakov with a layer of superhard material as claimed because it is well known in the well drilling art to provide inserts of a percussion drill bit with a layer of polycrystalline diamond to their wear resistance as evidenced by either Keshavan et al (see column 2, lines 35-49 and column 3, lines 3-7) or Hedlund et al (see column 2, lines 58-64 and column 3, lines 28-39).

With respect to the new limitation that the second cavities for the second inserts have a greater depth than the first cavities for the first inserts, it is conventional in the drill bit art to mount a larger insert in a larger and deeper cavity in a drill bit body because it is subjected to a greater force than a smaller insert as evidenced by Palmberg '728 (see Figure 2) or Hughes '163 (see Figure 2) or Liljekvist et al '849 (see Figure 3).

As for claims 7-11, 51-35 and 54-58, it would have been obvious to use the dimension or value within the claimed ranges since it has been held that where the general conditions of a

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claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As for claims 69 and 71, since the diameter of the second exposed portions of the “second insert” (outer ones) of Isakov is larger than the diameter of the first exposed portions of the “first insert” (inner ones) of Isakov, the “ratio of the thickness to the radius of curvature of the second exposed portions is less than the ratio of the thickness to the radius of curvature of the first exposed portions” as recited.

As for claims 74-76, since the larger inserts of Isakov '976 are located outside on the bit face relative to the smaller inserts as that of applicant's, they are inherently arranged as claimed.

### *Conclusion*

6. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

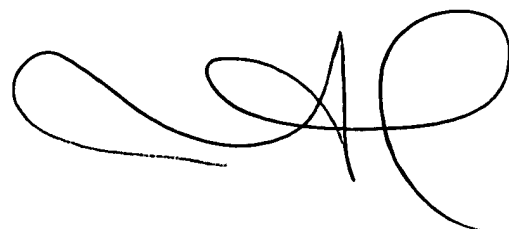
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang Dang whose telephone number is 703-308-2149. The examiner can normally be reached on 9:15-5:45 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Bagnell can be reached on 703-308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Hoang Dang**  
**Primary Examiner**  
**Art Unit 3672**

09104788.1rejRCE  
April 22, 2004

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke, positioned below the printed name of the examiner.